Content Standards

Numbers, Number Sense, and Computation

Patterns, Functions, and Algebra

Spatial Relationships, Geometry, and Logic

Measurement

Data Analysis

Process Standards
Mathematical Communication

Mathematical Reasoning

Problem Solving

Mathematical Connections

Nevada Mathematics Standards

Integrating Content and Process

Nevada Department of Education

700 East Fifth Street Carson City, Nevada 89701 www.doe.nv.gov

Dr. Keith W. RheaultState Superintendent of Public Instruction

Dr. Paul LaMarcaAssistant Deputy Superintendent
Director of Assessments, Program Accountability and Curriculum

David Brancamp K-12 Math Consultant

Table of Contents

Introduction	i
Reading and Understanding the Standards	ii
K - 12 Overview	
Process Standards	
Standard A: Problem Solving	1
Standard B: Mathematical Communication	2
Standard C: Mathematical Reasoning	3
Standard D: Mathematical Connections	
Content Standards	
Standard 1.0: Numbers, Number Sense, and Computation .	5
Place Value	
Fractions	5
Comparing and Ordering	7
Counting	
Facts	9
Estimating and Estimation Strategies	9
Computation	
Solving Problems and Number Theory	11
Standard 2.0: Patterns, Functions, and Algebra	13
Patterns	13
Variables and Unknowns	13
Number Sentences, Expressions, and Polynomials	15
Relations and Functions	15
Linear Equations and Inequalities	17
Algebraic Representations and Applications	

Standard 3.0: Measurement	19
Comparison, Estimation, and Conversion	19
Precision in Measurements	
Formulas	21
Money	21
Ratios and Proportions	23
Time	
Standard 4.0: Spatial Relationships, Geometry, and Logic	25
Two - Dimensional Shapes	
Congruence, Similarity, and Transformations	
Coordinate Geometry and Lines of Symmetry	
Three - Dimensional Figures	
Algebraic Connections	29
Lines, Angles, and their Properties	29
Triangles	31
Constructions	31
Logic	33
Standard 5.0: Data Analysis	35
Data Collection and Organization	35
Central Tendency and Data Distribution	35
Interpretation of Data	37
Permutations and Combinations	37
Experimental and Theoretical Probability	39
Statistical Inferences	39
Glossary	41
Acknowledgements	48

Teaching Mathematics for the 21st Century

We need citizens who can problem solve and think critically to compete in an ever-changing technological and global society. We must produce students who are capable of becoming life-long learners and successful citizens in a global market place. Therefore, students must develop a deep understanding of mathematical concepts and possess a strong foundation of number sense in order to become proficient in mathematics.

The Nevada Mathematics Standards connect the Process and Content Standards. The Process Standards describe the process in which students should learn mathematics and engage in mathematical thinking. The Content Standards outline the *big* mathematical ideas that all students should know and be able to do at each grade level. The *relationship* between the Process and Content Standards is critical. It is the combination of these two standards that will give students mathematical power. Neither will develop mathematically proficient students when used in isolation. Teachers are expected to use instructional practices that provide opportunities for students to experience both Process and Content Standards on a regular basis.

Supporting the Learning of All Students

Supporting the learning of all students involves responsive teaching.

- Responsive teachers monitor student learning and adapt instruction based on assessments.
- Responsive teachers use a wide variety of instructional strategies and materials that are connected to reasoning and different learning styles.
- Responsive teachers incorporate everyday life concepts, such as economics, employment, and consumer habits of diverse individuals and groups.
- Responsive teachers recognize and value that the diversity of cultural heritages has an impact on student attitudes and approaches to learning.

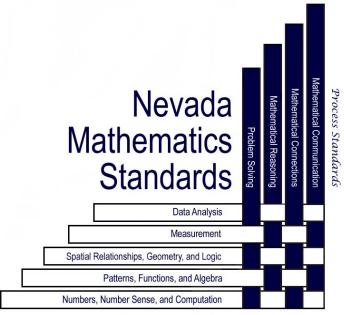
When mathematical ideas are connected to real world and everyday experiences, children learn to value and appreciate the usefulness of mathematics.

Nevada Process and Content Standards

The goal of the Nevada Mathematics Standards is to provide *all* students the opportunity to develop the ability to solve problems, communicate ideas and strategies, and to apply these skills to real world situations. The standards emphasize the importance of teaching mathematics within the context of its application so students can compute and use computational skills to reason and problem solve.

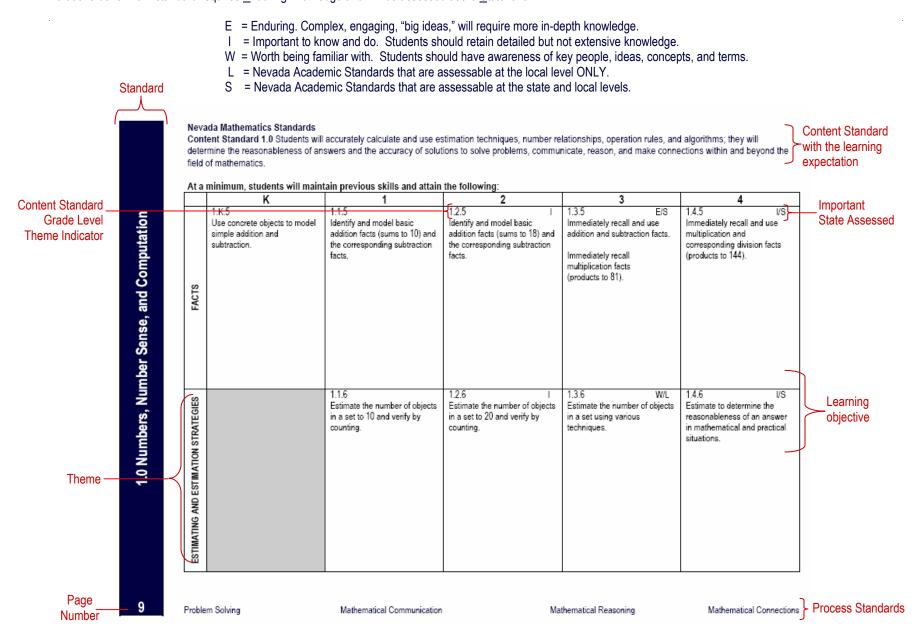
The Nevada Process Standards include Problem Solving, Mathematical Communication, Mathematical Reasoning, and Mathematical Connections.

The Nevada Content Standards include Numbers, Number Sense and Computation; Patterns, Functions and Algebra; Measurement; Spatial Relationships, Geometry and Logic; and Data Analysis.



Content Standards

The chart below represents a typical page in the Nevada Mathematics Standards. This information is provided to assist you in reading the document. Assessment level coding is also provided with its corresponding standard. For example, the notation E/S is found in the upper right-hand corner of the 3rd grade standard 1.3.5. This indicates that this benchmark standard requires Enduring knowledge and will be assessed at the State level.



Kindergarten

Kindergarten students recognize, read, write, and count numbers to twenty and use one-to-one correspondence. They create and model addition and subtraction using concrete objects. Students compare, order, and describe objects by size, value, or attributes as they are introduced to algebraic reasoning. Geometry at this level includes recognizing and identifying two-dimensional figures in their environment regardless of their orientation. An understanding of data develops through collecting. organizing, and recording information using objects and pictures.

1st Grade

First grade students learn basic addition facts through sums to ten and the corresponding subtraction facts. They use skip counting, begin to identify place value, and develop an understanding of equal parts of a whole. The foundation for algebraic reasoning is built through sorting and patterning. Measurement concepts are introduced as students compare the length and weight of objects using non-standard units of measurement, determine time to the nearest hour, and determine the value of a given set of coins. Geometric concepts are extended as students identify. name, sort, and sketch two- and three-dimensional objects in their environment. Further understanding of data analysis includes using tallies, tables, pictographs, and bar graphs.

2nd Grade

Second grade students expand their understanding of number sense and place value through the hundreds. They use twodigit addition and subtraction and identify halves and fourths of a whole. Algebraic reasoning continues to develop as students describe, extend, and use patterns to solve problems. Students represent mathematical situations using numbers, symbols, and words. Measurement concepts include temperature, time to the nearest quarter hour, decimals to show money amounts, and standard units of measurement. Geometric concepts expand as students compare and describe two- and three-dimensional geometric figures, identify lines of symmetry, and sort objects by attributes. Data is collected and represented using tables, pictographs, and bar graphs. Students make predictions using informal concepts of probability.

3rd Grade

Third grade students continue to develop their understanding of the number system and place value. Students demonstrate immediate recall of addition. subtraction, and multiplication facts and identify, read, and write simple fractions. Students model, generate, and solve twostep addition and subtraction problems and one-step multiplication problems. Algebraic reasoning is developed as students record and describe how patterns are extended. Variables and open sentences are used to express algebraic relationships. Measurement concepts include appropriate units of measure to the nearest half unit, money notation, time to the nearest minute, and elapsed time to the nearest half hour. In geometry, students describe, sketch, and compare plane figures and lines and demonstrate transformational motions. Data is collected and represented graphically through number lines and frequency tables. Informal concepts of probability are expanded.

4th Grade

Fourth grade students read, write, compare, and order whole numbers and fractions, identify and use place value, and recall and use facts. Students use estimation as they generate and solve problems. Patterns and relationships are identified. described, and represented numerically and algebraically. Algebraic concepts are expanded to include modeling, explaining, and solving open number sentences. Measurement concepts include area and perimeter, money notation, and elapsed time to the nearest quarter hour. Geometric concepts are expanded to include symmetry, congruence, and coordinate geometry. Models are used to identify, describe, and classify figures by relevant properties. Data analysis includes collecting and representing information through frequency tables and line plots. Students model measures of central tendency for mode and median. Probability experiments are conducted using concrete materials and the results are represented using fractions to make predictions.

5th Grade

Fifth grade students develop proficiency in using whole number, fractions, and decimals to solve problems. Algebraic reasoning develops as students identify, describe, and represent patterns and relationships in the number system and complete number sentences using words and symbols. Measurement is developed as students estimate and measure within customary and metric systems, show understanding of perimeter and area, identify equivalent periods of time, and solve problems involving monetary amounts. Spatial sense and geometric concepts are extended as students develop an understanding of the relationship between and among two- and threedimensional figures and represent geometric shapes on a coordinate plane. In data analysis, students design surveys to collect, display, and analyze data to make predictions and draw conclusions.

6th Grade

Sixth grade students continue their development of number theory to include fractions. decimals, percents, prime and composite numbers, factors, and rules of divisibility to solve problems. Algebraic concepts are developed as students create tables and charts to extend and describe a rule. Students evaluate and write formulas and algebraic expressions. Measurement concepts expand to include the use of formulas and ratios to measure circumference, compare unit costs, and determine equivalent periods of time. In geometry, students determine complementary, supplementary, and missing angles. Students identify and locate points on a coordinate plane and plot geometric shapes in all four quadrants. Data analysis requires students to construct sample spaces and tree diagrams to find the number of outcomes for an event.

7th Grade

Seventh grade students continue their development of the rational number system with the inclusion of integers. Algebraic sense develops as students analyze and extend patterns to describe the rule. Measurement skills include conversions between the customary and metric measurement systems with respect to area and capacity. Geometric skills include describing relationships between basic geometric elements, figures, and transformations on a coordinate plane. Students refine their understanding of data analysis by formulating their own questions, collecting and organizing data, and choosing the appropriate graphical representation. Identification. explanation, and application of mathematical concepts correspond with real-world

8th Grade

Eighth grade students become proficient in working with various representations of and calculating with real numbers including scientific notation. Algebra skills extend in identifying missing terms in a sequence or representation. Students solve linear equations and graphically represent the solution. Measurement skills expand to include how changes in dimensions affect the perimeter, area, and volume. Students apply properties of equality and proportionality to similar and congruent shapes. Geometric concepts are extended to include the calculation of the measure of the interior angles of polygons. Students refine their understanding of data analysis as they include box-and-whisker plots to graphically represent a data set and then describe this data through the use of measures of central tendency. Students begin to evaluate statistical arguments based on accuracy and validity. Students synthesize, generalize, and apply knowledge and strategies to new situations.

9th – 12th Grade

High school students demonstrate fluency in mathematical computation. Knowledge of properties of real numbers and variables are demonstrated in algebraic expressions, equations, and inequalities. Students expand their algebraic knowledge to linear and quadratic functions. Students use appropriate measurement tools and techniques and represent solutions with correct units. They expand measurement skills to include conversion between the customary and metric systems. Coordinate geometry is utilized to determine slope and to graph equations. Students apply properties of circles and angles of polygons, and find possible solution sets to systems of equations. Properties of similarity are extended using right triangle trigonometry. Students design, collect, organize, calculate, display, and communicate statistical results. Probability experiments, measures of central tendency. and data distribution are appropriately used to analyze data. Students appropriately represent statistical findings and develop inferences and predictions based on given data.

situations.

Numbers & Operations

Process Standard A: Students will develop their ability to solve problems by engaging in developmentally appropriate opportunities where there is a need to use various approaches to investigate and understand mathematical concepts in order to:

K – 12

- Formulate their own problems
- Find solutions to problems from everyday situations
- Develop and apply strategies to solve a variety of problems
- Integrate mathematical reasoning, communication and connections

Algebra

K - 2	3 - 5	6 - 8	9 - 12
Apply previous experience and knowledge to new problem solving situations Explain and verify results with respect to the original problem Try more than one strategy when the first strategy proves to be unproductive Use technology, including calculators, to develop mathematical concepts	Generalize and apply previous experiences and strategies to new problem solving situations Determine an efficient strategy, verify, interpret, and evaluate the results with respect to the original problem Try more than one strategy when the first strategy proves to be unproductive Interpret and solve a variety of mathematical problems by paraphrasing Identify necessary and extraneous information Check the reasonableness of a solution Use technology, including calculators, to develop mathematical concepts	Generalize solutions and apply previous knowledge to new problem solving situations Determine an efficient strategy, verify, interpret, and evaluate the results with respect to the original problem Apply problem solving strategies until a solution is found or it is clear that no solution exists Interpret and solve a variety of mathematical problems by paraphrasing Identify necessary and extraneous information Check the reasonableness of a solution Apply technology as a tool in problem solving situations	 Generalize solutions and apply previous knowledge to new problem solving situations Determine an efficient strategy, verify, interpret, and evaluate the results with respect to the original problem Apply problem solving strategies until a solution is found or it is clear that no solution exists Interpret and solve a variety of mathematical problems by paraphrasing Identify necessary and extraneous information Check the reasonableness of a solution Apply technology as a tool in problem solving situations Apply combinations of proven strategies and previous knowledge to solve non-routine problems

Measurement

Geometry

Data Analysis

Process Standard B: Students will develop their ability to communicate mathematically by solving problems where there is a need to obtain information from the real world through reading, listening, and observing in order to:

K – 12

- Translate information into mathematical language and symbols
- **Process information mathematically**
- Present results in written, oral, and visual formats
- Discuss and exchange ideas about mathematics as a part of learning
- Read a variety of fiction and nonfiction texts to learn about mathematics.

 Use mathematical notation to 	communicate and explain problen	18	
K - 2	3 - 5	6 - 8	9 - 12
 Use inquiry techniques to solve mathematical problems Use physical materials, models, pictures, or writing to represent and communicate mathematical ideas Identify and translate key words and phrases that imply mathematical operations Use everyday language, both orally and in writing, to communicate strategies and solutions to mathematical problems 	Use inquiry techniques to solve mathematical problems Use a variety of methods to represent and communicate mathematical ideas through oral, verbal, and written formats Identify and translate key words and phrases that imply mathematical operations Use everyday language, both orally and in writing, to communicate strategies and solutions to mathematical problems	 Use formulas, algorithms, inquiry, and other techniques to solve mathematical problems Evaluate written and oral presentations in mathematics Identify and translate key words and phrases that imply mathematical operations Model and explain mathematical relationships using oral, written, graphic, and algebraic methods Use everyday language, both orally and in writing, to communicate strategies and solutions to mathematical problems 	 Use a variety of techniques to solve mathematical problems Evaluate written and oral presentations in mathematics. Model and explain mathematical relationships using oral, written, graphic, and algebraic methods Communicate and evaluate mathematical thinking based on the use of definitions, properties, rules, and symbols in problem solving Use everyday language, both orally and in writing, communicate strategies and solutions to problems using appropriate mathematical language

Numbers & Operations Data Analysis Algebra Measurement Geometry

Nevada Mathematics Standards

Process Standard C: Students will develop their ability to reason mathematically by solving problems where there is a need to investigate mathematical ideas and construct their own learning in all content areas in order to:

K – 12

- Reinforce and extend their logical reasoning abilities
- Reflect on, clarify, and justify their thinking
- Ask questions to extend their thinking
- Use patterns and relationships to analyze mathematical situations
- Determine relevant, irrelevant, and/or sufficient information to solve mathematical problems

K - 2	3 - 5	6 - 8	9 - 12
 Draw logical conclusions about mathematical problems Discuss the steps used to solve a mathematical problem Justify and explain the solutions to problems using physical models 	 Draw logical conclusions about mathematical problems Follow a logical argument and judge its validity Review and refine the assumptions and steps used to derive conclusions in mathematical arguments Justify and explain the solutions to problems using manipulatives and physical models 	 Recognize and apply deductive and inductive reasoning Review and refine the assumptions and steps used to derive conclusions in mathematical arguments Justify answers and the steps taken to solve problems with and without manipulatives and physical models 	 Recognize and apply deductive and inductive reasoning Review and refine the assumptions and steps used to derive conclusions in mathematical arguments Make and test conjectures about algebraic and geometric properties based on mathematical principles Justify the validity of an argument Construct a valid argument

Numbers & Operations Algebra Measurement Geometry Data Analysis

Process Standard D: Students will develop the ability to make mathematical connections by solving problems where there is a need to view mathematics as an integrated whole in order to:

K – 12

- Link new concepts to prior knowledge
- Identify relationships between content strands
- Integrate mathematics with other disciplines
- Allow the flexibility to approach problems in a variety of ways within and beyond the field of mathematics

K - 2	3 - 5	6 - 8	9 - 12
Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as rhythm in music and motion in science Identify mathematics used in everyday life	 Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics Use physical models to explain the relationship between concepts and procedures Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as rhythm in music and motion in science Identify, explain, and use mathematics in everyday life 	 Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics Use manipulatives and physical models to explain the relationships between concepts and procedures Use the connections among mathematical topics to develop multiple approaches to problems Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as rhythm in music and motion in science Identify, explain, and apply mathematics in everyday life 	 Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics Explain the relationship between concepts and procedures Use the connections among mathematical topics to develop multiple approaches to problems Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as rhythm in music and motion in science Identify, explain, and apply mathematics in everyday life

Numbers & Operations Algebra Measurement Geometry Data Analysis

Nevada Mathematics Standards

Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
PLACE VALUE		1.1.1 Identify, model, read, and write place value positions of 1's and 10's. Identify the value of a given digit in the 1's and 10's place.	1.2.1 I Identify, use, and model place value positions of 1's, 10's and 100's. Identify the value of a given digit in the 1's, 10's and 100's place.	1.3.1 I/S Identify, use, and model place value positions of 1's, 10's, 100's, and 1,000's. Identify the value of a given digit in the 1's, 10's, 100's, and 1,000's place.	1.4.1 E/S Identify and use place value positions of whole numbers to one million.
FRACTIONS		1.1.2 Identify and model a whole. Identify and model 1/2 as two equal parts of a whole or a set of objects.	1.2.2 E Identify equal parts of a whole. Identify and model the unit fractions 1/2 and 1/4 as equal parts of a whole or sets of objects.	1.3.2 I/S Identify and model the unit fractions 1/2, 1/3, 1/4, 1/6, and 1/8 as equal parts of a whole or sets of objects. Read and write unit fractions with numbers and words.	1.4.2 E/S Identify fractions and compare fractions with like denominators using models, drawings, and numbers.

Nevada Mathematics Standards

Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
1.5.1 E/S Identify and use place value positions of whole numbers and decimals to hundredths.	1.6.1 E/S Identify and use place value positions to thousandths.	1.7.1 I/L Identify and use place value in mathematical and practical situations. Write, identify, and use powers of 10 from 10 ⁻³ through 10 ⁶ .	1.8.1 E/S Represent numbers using scientific notation in mathematical and practical situations.		PLACE VALUE
1.5.2 E/S Add and subtract fractions with like denominators using models, drawings, and numbers. Compare fractions with unlike denominators using models and drawings, and by finding common denominators. Identify, model, and compare improper fractions and mixed numbers.	1.6.2 I/S Add and subtract fractions with unlike denominators. Multiply and divide with fractions using models, drawings, and numbers. Use models to translate among fractions, decimals, and percents.	1.7.2 E/S Translate among fractions, decimals, and percents, including fractional percents.	1.8.2 E/S Translate among fractions, decimals, and percents, including percents greater than 100 and percents less than 1. Explain and use the relationship among equivalent representations of rational numbers in mathematical and practical situations.		FRACTIONS

Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
45	1.K.3 Recognize, read, and write numbers from 0 - 10.	1.1.3 Read, write, compare, and order numbers from 0 - 100.	1.2.3 I Read, write, compare, and order numbers from 0 - 999.	1.3.3 I/S Read, write, compare, and order numbers from 0 – 9,999.	1.4.3 I/S Read, write, compare, and order whole numbers.
COMPARING AND ORDERING	Identify ordinal positions first to third.	Identify ordinal positions first to tenth.	Identify ordinal positions first to twentieth.	Read and write numbers words to 100.	Read and write number words.
NG AND (Match the number of objects in a set to the correct numeral 0 - 10.	Read and write number words to 10.	Read and write number words to 20.		
COMPARI	Recognize relationships of more than, less than, and equal to.	Create, compare, and describe sets of objects and numbers from 0 - 100 as greater than, less than, or equal to (>, <, =).	Create, compare, and describe sets of objects and numbers from 0 - 999 as greater than, less than, or equal to (>, <, =).		
COUNTING	1.K.4 Count to 20 by demonstrating one-to-one correspondence using objects.	1.1.4 Use number patterns and models to count by 2's, 5's, and 10's to 100.	1.2.4 W Use number patterns to skip count.	1.3.4 I/L Model and explain multiplication and division as skip counting patterns. Model and explain multiplication and division as repeated addition or subtraction.	1.4.4 I/L Count by multiples of a given number. Explain relationships between skip counting, repeated addition, and multiples.

Nevada Mathematics Standards

Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
1.5.3 I/L Read, write, compare, and order integers in mathematical and practical situations.	1.6.3 I/S Read, write, compare, and order groups of fractions, groups of decimals, and groups of percents.	1.7.3 I/S Compare and order a combination of rational numbers, including fractions, decimals, percents, and integers in mathematical and practical situations.	1.8.3 E/S Compare and order real numbers, including powers of whole numbers in mathematical and practical situations.		COMPARING AND ORDERING
					COUNTING

Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
FACTS	1.K.5 Use concrete objects to model simple addition and subtraction.	1.1.5 Identify and model basic addition facts (sums to 10) and the corresponding subtraction facts.	1.2.5 I Identify and model basic addition facts (sums to 18) and the corresponding subtraction facts. Immediately recall basic addition facts (sums to 18) and the corresponding subtraction facts.	1.3.5 E/S Immediately recall and use addition and subtraction facts. Immediately recall multiplication facts (products to 81).	1.4.5 I/S Immediately recall and use multiplication and corresponding division facts (products to 144).
ESTIMATING AND ESTIMATION STRATEGIES		1.1.6 Estimate the number of objects in a set to 10 and verify by counting.	1.2.6 I Estimate the number of objects in a set to 20 and verify by counting.	1.3.6 W/L Estimate the number of objects in a set using various techniques.	1.4.6 I/S Estimate to determine the reasonableness of an answer in mathematical and practical situations.

Nevada Mathematics Standards

Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
1.5.5 E/S Use multiples of 10 to expand knowledge of basic multiplication and division facts.	1.6.5 E/S Identify equivalent expressions between and among fractions, decimals, and percents.	1.7.5 E/S Identify absolute values of integers.	1.8.5 E/S Identify perfect squares to 225 and their corresponding square roots.		FACTS
1.5.6 I/L Estimate to determine the reasonableness of an answer in mathematical and practical situations involving decimals.	1.6.6 E/S Estimate using fractions, decimals, and percents. Use estimation strategies in mathematical and practical situations.	1.7.6 E/S Generate a reasonable estimate for a computation using a variety of methods. Select and round to the appropriate significant digit.	1.8.6 E/S Use estimation strategies to determine the reasonableness of an answer in mathematical and practical situations.	1.12.6 E/S Determine an approximate value of radical and exponential expressions using a variety of methods.	ESTIMATING AND ESTIMATION STRATEGIES

Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
COMPUTATION			1.2.7 I Add and subtract one- and two-digit numbers without regrouping.	1.3.7 I/S Add and subtract two- and three-digit numbers with and without regrouping. Add and subtract decimals using money as a model.	1.4.7 E/S Add and subtract multi-digit numbers. Multiply and divide multi-digit numbers by a one-digit whole number with regrouping, including monetary amounts as decimals.
SOLVING PROBLEMS AND NUMBER THEORY		1.1.8 Demonstrate the joining and separating of sets with 20 or fewer objects. Model the meaning of addition and subtraction in a variety of ways including the comparison of sets using objects, pictorial representations, and symbols. Use mathematical vocabulary and symbols to describe addition, subtraction, and equality.	1.2.8 I Generate and solve one-step addition and subtraction problems based on practical situations. Model addition and subtraction in a variety of ways using pictorial representations and symbols to illustrate subtraction of sets, comparison of sets, and missing addends. Reinforce the use of mathematical vocabulary and symbols to describe addition, subtraction, and equality.	1.3.8 E/S Generate and solve two-step addition and subtraction problems and one-step multiplication problems based on practical situations. Model addition, subtraction, multiplication, and division in a variety of ways. Use mathematical vocabulary and symbols to describe multiplication and division.	1.4.8 E/S Generate and solve addition, subtraction, multiplication, and division problems using whole numbers in practical situations.

Nevada Mathematics Standards

Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
1.5.7 E/S Add and subtract decimals. Multiply and divide decimals by whole numbers in problems representing practical situations. Use order of operations to evaluate expressions with whole numbers.	1.6.7 I/S Calculate using fractions, decimals, and percents in mathematical and practical situations. Use order of operations to evaluate expressions with integers.	1.7.7 I/S Calculate with integers and other rational numbers to solve mathematical and practical situations. Use order of operations to evaluate expressions and solve one-step equations (containing rational numbers).	1.8.7 I/S Calculate with real numbers to solve mathematical and practical situations. Use order of operations to solve equations in the real number system.	1.12.7 E/S Solve mathematical problems involving exponents and roots. Perform addition, subtraction, and scalar multiplication on matrices.	COMPUTATION
1.5.8 E/S Generate and solve addition, subtraction, multiplication, and division problems using whole numbers and decimals in practical situations.	1.6.8 I/S Use the concepts of number theory, including prime and composite numbers, factors, multiples, and the rules of divisibility to solve problems.	1.7.8 E/S Identify and apply the distributive, commutative, and associative properties of rational numbers to solve problems.	1.8.8 I/L Identify and apply the identity property, inverse property, and the absolute value of real numbers to solve problems.	1.12.8 I/S Identify and apply real number properties to solve problems.	SOLVING PROBLEMS AND NUMBER THEORY

Content Standard 2.0 Students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
PATTERNS	2.K.1 Identify attributes used to sort objects.	2.1.1 Recognize, describe, label, extend, and create simple repeating patterns using symbols, objects, and manipulatives.	2.2.1 I Recognize, describe, extend, and create repeating and increasing patterns using symbols, objects, and manipulatives. Use patterns and their extensions to solve problems.	2.3.1 I/S Recognize, describe, and create patterns using objects and numbers found in tables, number charts, and charts. Record results of patterns created using manipulatives, pictures, and numeric representations and describe how they are extended.	2.4.1 E/S Identify, describe, and represent patterns and relationships in the number system, including arithmetic and geometric sequences.
VARIABLES AND UNKNOWNS		2.1.2 Recognize that unknowns in an addition or subtraction equation represent a missing value that will make the statement true.	2.2.2 I Model, explain, and identify missing operations and missing numbers in open number sentences involving number facts in addition and subtraction.	2.3.2 I/S Model, explain, and solve open number sentences involving addition, subtraction, and multiplication facts. Use variables and open sentences to express relationships.	2.4.2 I/S Model, explain, and solve open number sentences involving addition, subtraction, multiplication, and division. Select the solution to an equation from a given set of numbers.

Nevada Mathematics Standards

Content Standard 2.0 Students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
2.5.1 I/L Identify, describe, and represent patterns and relationships in the number system, including triangular numbers and perfect squares.	2.6.1 E/S Use and create tables and charts to extend a pattern in order to describe a rule for input/output tables and to find missing terms in a sequence.	2.7.1 E/S Use and create tables, charts, and graphs to extend a pattern in order to describe a linear rule, including integer values.	2.8.1 E/S Find the missing term in a numerical sequence or a pictorial representation of a sequence.	2.12.1 E/S Use algebraic expressions to identify and describe the n th term of a sequence.	PATTERNS
2.5.2 I/S Find possible solutions to an inequality involving a variable using whole numbers as a replacement set. Solve equations with whole numbers using a variety of methods, including inverse operations, mental math, and guess and check.	2.6.2 I/S Evaluate formulas and algebraic expressions using whole number values. Solve and graphically represent equations and simple inequalities in one variable.	2.7.2 I/S Evaluate formulas and algebraic expressions for given integer values. Solve and graphically represent equations and inequalities in one variable with integer solutions.	2.8.2 I/S Evaluate formulas and algebraic expressions using rational numbers (with and without technology). Solve and graphically represent equations and inequalities in one variable, including absolute value.	2.12.2 E/S Isolate any variable in given equations, inequalities, proportions, and formulas to use in mathematical and practical situations.	VARIABLES AND UNKNOWNS

Content Standard 2.0 Students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
NUMBER SENTENCES, EXPRESSIONS, AND POLYNOMIALS	2.K.3 Identify and create sets of objects with unequal amounts, describing them as greater than or less than.	2.1.3 Create, compare, and describe sets of objects as greater than, less than, or equal to.	2.2.3 I Complete number sentences with the appropriate words and symbols (+, -, =). Represent mathematical situations using numbers, symbols, and words.	2.3.3 I/S Complete number sentences with the appropriate words and symbols (+, -, >, <, =).	2.4.3 I/S Complete number sentences with the appropriate words and symbols (+, -, x, ÷, >, <, =).
RELATIONS AND FUNCTIONS					

Content Standard 2.0 Students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
2.5.3 E/S Complete number sentences with the appropriate words and symbols including ≥, ≤ and ≠.	2.6.3 I/L Write simple expressions and equations using variables to represent mathematical situations.	2.7.3 I/L Simplify algebraic expressions by combining like terms.	2.8.3 I/S Add and subtract binomials.	2.12.3 I/S Add, subtract, multiply, and factor 1st and 2nd degree polynomials connecting the arithmetic and algebraic processes. Simplify algebraic expressions, including exponents and radicals.	NUMBER SENTENCES, EXPRESSIONS, AND POLYNOMIALS
	2.6.4 I/S When given a rule relating two variables, create a table and represent the ordered pairs on a coordinate plane.	2.7.4 I/S Generate and graph a set of ordered pairs to represent a linear equation.	2.8.4 I/S Identify, model, describe, and evaluate functions (with and without technology). Translate among verbal descriptions, graphic, tabular, and algebraic representations of mathematical situations (with and without technology).	2.12.4 E/S Determine the domain and range of functions, including linear, quadratic, and absolute value, algebraically and graphically. Solve absolute value equations and inequalities both algebraically and graphically.	RELATIONS AND FUNCTIONS

Nevada Mathematics Standards

Content Standard 2.0 Students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	ain previous skilis and attain 1	2	3	4
LINEAR EQUATIONS AND INEQUALITIES					
ALGEBRAIC REPRESENTATIONS AND APPLICATIONS					

Nevada Mathematics Standards

Content Standard 2.0 Students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
		2.7.5 I/S Identify linear equations and inequalities. Model and solve equations using concrete and visual representations.	2.8.5 E/S Solve linear equations and represent the solution graphically. Solve inequalities and represent the solution on a number line.	2.12.5 I/S Solve systems of two linear equations algebraically and graphically and verify solutions (with and without technology).	LINEAR EQUATIONS AND INEQUALITIES
			2.8.6 I/S Describe how changes in the value of one variable affect the values of the remaining variables in a relation.	2.12.6 E/S Solve mathematical and practical problems involving linear and quadratic equations with a variety of methods, including discrete methods (with and without technology).	ALGEBRAIC REPRESENTATIONS AND APPLICATIONS

Content Standard 3.0 Students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
COMPARISON, ESTIMATION, AND CONVERSION	3.K.1 Compare, order, and describe objects by size.	3.1.1 Compare, order, describe, and represent objects by length and weight.	3.2.1 I Compare, order, and describe objects by various measurable attributes for length, weight, and temperature.	3.3.1 E/S Compare, order, and describe objects by various measurable attributes for area and volume/capacity.	3.4.1 E/S Estimate and convert units of measure for length, area, and weight within the same measurement system (customary and metric). Estimate temperature in practical situations.
PRECISION IN MEASUREMENTS		3.1.2 Compare and measure length and weight using non-standard measurement.	3.2.2 I Compare objects to standard whole units to find objects that are greater than, less than, and/or equal to a given unit.	3.3.2 I/S Select and use appropriate units of measure. Measure to a required degree of accuracy (to the nearest 1/2 unit).	3.4.2 E/S Measure length, area, temperature, and weight to a required degree of accuracy in customary and metric systems.

Nevada Mathematics Standards

Content Standard 3.0 Students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
3.5.1 E/S Estimate and convert units of measure for weight and volume/capacity within the same measurement system (customary and metric).	3.6.1 E/S Estimate and compare corresponding units of measure for temperature, length, and weight/mass between customary and metric systems.	3.7.1 E/S Estimate and compare corresponding units of measure for area and volume/capacity between customary and metric systems.	3.8.1 I/S Estimate and convert units of measure for mass and capacity within the same measurement system (customary and metric).	3.12.1 I/L Estimate and convert between customary and metric systems.	COMPARISON, ESTIMATION, AND CONVERSION
3.5.2 I/L Measure volume and weight to a required degree of accuracy in the customary and metric systems.	3.6.2 E/S Given two measurements of the same object, select the one that is more precise. Explain how the size of the unit of measure used effects precision.	3.7.2 W/L Given a measurement, identify the greatest possible error.	3.8.2 I/S Demonstrate an understanding of precision, error, and tolerance when using appropriate measurement tools.	3.12.2 I/S Justify, communicate, and differentiate between precision, error, and tolerance in practical problems.	PRECISION IN MEASUREMENTS

Content Standard 3.0 Students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
FORMULAS					3.4.3 I/S Define and determine the perimeter of polygons and the area of rectangles, including squares.
MONEY	3.K.4 Identify and sort pennies, nickels, and dimes.	3.1.4 Determine the value of any set of pennies, nickels, and dimes.	3.2.4 E Determine the value of any given set of coins. Use decimals to show money amounts. Recognize equivalent combinations of coins.	3.3.4 E/S Determine possible combinations of coins and bills to equal given amounts. Read, write, and use money notation. Recognize equivalent relationships between and among bills and coins.	3.4.4 E/S Determine totals for monetary amounts in practical situations. Use money notation to add and subtract given monetary amounts.

Nevada Mathematics Standards

Content Standard 3.0 Students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
3.5.3 I/S Describe the difference between perimeter and area, including the difference in units of measure.	3.6.3 E/S Select, model, and apply formulas to find the perimeter, circumference, and area of plane figures.	3.7.3 I/S Select, model, and apply formulas to find the volume and surface area of solid figures.	3.8.3 E/S Identify how changes in a dimension of a figure effect changes in its perimeter, area and volume.	3.12.3 E/S Select and use appropriate measurement tools, techniques, and formulas to solve problems in mathematical and practical situations.	FORMULAS
3.5.4 E/S Determine totals, differences, and change due for monetary amounts in practical situations.	3.6.4 E/S Compare and use unit cost in practical situations.	3.7.4 E/S Calculate simple interest in monetary problems.	3.8.4 E/S Calculate percents in monetary problems.	3.12.4 E/S Interpret and apply consumer data presented in charts, tables, and graphs to make informed financial decisions related to practical applications.	MONEY

Content Standard 3.0 Students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

- Tit u	K	1	2	3	4
RATIOS AND PROPORTIONS					
TIME	3.K.6 Recite in order the days of the week.	3.1.6 Recite in order the months of the year. Use a calendar to identify days, weeks, months, and a year. Read time to the nearest hour.	3.2.6 E Read time to the nearest half hour and quarter hour. Use elapsed time in one hour increments, beginning on the hour, to determine start, end, and elapsed time. Recognize that there are 12 months in 1 year, 7 days in 1 week, and 24 hours in 1 day.	3.3.6 E/S Tell time to the nearest minute, using analog and digital clocks. Use elapsed time in half-hour increments, beginning on the hour or half-hour, to determine start, end, and elapsed time. Recognize that there are 60 minutes in 1 hour.	3.4.6 E/S Use A.M. and P.M. appropriately in describing time. Use elapsed time in quarter-hour increments, beginning on the quarter-hour, to determine start, end, and elapsed time. Recognize the number of weeks in a year, days in a year, and days in a month.

Nevada Mathematics Standards

Content Standard 3.0 Students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
	3.6.5 I/S Write and apply ratios in mathematical and practical problems involving measurement and monetary conversions.	3.7.5 I/S Write and apply proportions to solve mathematical and practical problems involving measurement and monetary conversions.	3.8.5 E/S Apply ratios and proportions to calculate rates and solve mathematical and practical problems using indirect measure.	3.12.5 I/S Determine the measure of unknown dimensions, angles, areas, and volumes using relationships and formulas to solve problems.	RATIOS AND PROPORTIONS
3.5.6 E/S Determine equivalent periods of time, including relationships between and among seconds, minutes, hours, days, months, and years.	3.6.6 E/S Use equivalent periods of time to solve practical problems.	3.7.6 E/S Use elapsed time to solve practical problems.			TIME

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
TWO - DIMENSIONAL SHAPES	4.K.1 Identify two-dimensional shapes (circles, triangles, rectangles including squares) regardless of orientation.	4.1.1 Name, sort, and sketch two-dimensional shapes (circles, triangles, rectangles including squares) regardless of orientation.	4.2.1 E Describe, sketch, and compare two-dimensional shapes regardless of orientation.	4.3.1 I/S Describe, sketch, compare, and contrast plane geometric figures.	4.4.1 I/S Identify, draw, and classify angles, including straight, right, obtuse, and acute.
CONGRUENCE, SIMILARITY, AND TRANSFORMATIONS	4.K.2 Demonstrate an understanding of relative position words, including before/after, far/near, and over/under, to place objects.	4.1.2 Demonstrate an understanding of position words, including down/up, left/right, top/bottom, and between/middle, by describing the relative location of objects.	4.2.2 I Identify congruent and similar shapes (circles, triangles, and rectangles including squares).	4.3.2 I/L Demonstrate and describe the transformational motions of geometric figures (translation/slide, reflection/flip, and rotation/turn).	4.4.2 I/S Identify shapes that are congruent, similar, and/or symmetrical using a variety of methods including transformational motions.

Nevada Mathematics Standards

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
4.5.1 I/S Identify, classify, compare, and draw triangles and quadrilaterals based on their properties. Identify and draw circles and parts of circles, describing the relationships between the various parts.	4.6.1 E/S Measure angles using a protractor. Identify, classify, compare and draw regular and irregular quadrilaterals. Identify, draw, and use central angles to represent fractions of a circle.	4.7.1 E/S Identify, classify, compare, and draw regular and irregular polygons. Find and verify the sum of the measures of interior angles of triangles and quadrilaterals.	4.8.1 E/S Find and use the sum of the measures of interior angles of polygons.	4.12.1 E/S Identify and use the parts of a circle to solve mathematical and practical problems. Identify and apply properties of interior and exterior angles of polygons to solve mathematical and practical problems.	TWO – DIMENSIONAL SHAPES
4.5.2 I/S Represent concepts of congruency, similarity, and/or symmetry using a variety of methods including dilation (enlargement/reduction) and transformational motions.	4.6.2 I/S Determine actual measurements represented on scale drawings. Convert actual measurements to scale.	4.7.2 I/L Make scale drawings using ratios and proportions.	4.8.2 E/S Apply the properties of equality and proportionality to congruent or similar shapes.	4.12.2 E/S Apply properties of similarity through right triangle trigonometry to find missing angles and sides.	CONGRUENCE, SIMILARITY, AND TRANSFORMATIONS

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
COORDINATE GEOMETRY AND LINES OF SYMMETRY	4.K.3 Identify two-dimensional figures (windows are shaped like rectangles) as they appear in the environment.	4.1.3 Identify and copy two- dimensional designs that contain a line of symmetry.	4.2.3 I Identify figures with symmetry as they appear in the environment.	4.3.3 I/L Create two-dimensional designs that contain a line of symmetry.	4.4.3 I/S Identify coordinates for a given point in the first quadrant. Locate points of given coordinates on a grid in the first quadrant.
THREE - DIMENSIONAL FIGURES	4.K.4 Identify three-dimensional figures in the environment.	4.1.4 Identify and name three- dimensional figures in the environment.	4.2.4 I Identify, name, sort, and describe two- and three-dimensional geometric figures and objects including circle/sphere and square/cube.	4.3.4 I/L Compare, contrast, sketch, model, and build two- and three-dimensional geometric figures and objects.	4.4.4 E/S Identify, describe, and classify two- and three-dimensional figures by relevant properties including the number of vertices, edges, and faces using models.

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
4.5.3 E/S Graph coordinates representing geometric shapes in the first quadrant.	4.6.3 I/S Using a coordinate plane, identify and locate points. Graph coordinates representing geometric shapes in all four quadrants on a coordinate plane.	4.7.3 I/S Demonstrate translation, reflection, and rotation using coordinate geometry and models. Describe the location of the original figure and its transformation on a coordinate plane.	4.8.3 I/S Demonstrate dilation using coordinate geometry and models. Describe the relationship between an original figure and its transformation or dilation.		COORDINATE GEOMETRY AND LINES OF SYMMETRY
4.5.4 E/S Predict and describe the effects of combining, dividing, and changing shapes into other shapes.	4.6.4 I/L Make a model of a three- dimensional prism from a two- dimensional drawing. Make a two-dimensional drawing of a three-dimensional prism.	4.7.4 I/L Make a model of a three- dimensional figure from a two- dimensional drawing. Make a two-dimensional drawing of a three-dimensional figure.			THREE - DIMENSIONAL FIGURES

Nevada Mathematics Standards

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

7.1. u	K	1	2	3	4
ALGEBRAIC CONNECTIONS					
LINES, ANGLES, AND THEIR PROPERTIES				4.3.6 I/S Identify, draw, and describe horizontal, vertical, and oblique lines.	4.4.6 I/S Identify, draw, label, and describe points, line segments, rays, and angles.

Nevada Mathematics Standards

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
	4.6.5 I/L Model slope (pitch, angle of inclination) using concrete objects and practical examples.	4.7.5 I/S Determine slope of a line, midpoint of a segment, and the horizontal and vertical distance between two points using coordinate geometry.	4.8.5 I/S Calculate slope, midpoint, and distance using equations and formulas (with and without technology). Determine the <i>x</i> - and <i>y</i> - intercepts of a line.	4.12.5 E/S Determine the slope of lines using coordinate geometry and algebraic techniques. Identify parallel, perpendicular, and intersecting lines by slope. Graph linear equations and find possible solutions to those equations using coordinate geometry. Find possible solution sets of systems of equations whose slopes indicate parallel, perpendicular, or intersecting lines.	ALGEBRAIC CONNECTIONS
4.5.6 E/S Identify, draw, label, and describe planes, parallel lines, intersecting lines, and perpendicular lines.	4.6.6 I/S Draw, identify, and find measures of complementary and supplementary angles using arithmetic and geometric methods.	4.7.6 I/S Describe the geometric relationships of parallel lines, perpendicular lines, triangles, quadrilaterals and bisectors.	4.8.6 I/S Form generalizations and validate conclusions about geometric figures and their properties.	4.12.6 I/S Solve problems using complementary and supplementary angles, congruent angles, vertical angles, angles formed when parallel lines are cut by a transversal and angles in polygons.	LINES, ANGLES, AND THEIR PROPERTIES

Nevada Mathematics Standards

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
TRIANGLES					
CONSTRUCTIONS					

Nevada Mathematics Standards

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
4.5.7 I/L Describe characteristics of right, acute, obtuse, scalene, equilateral, and isosceles triangles.	4.6.7 I/L Determine the measure of missing angles of triangles based on the Triangle Sum Theorem.	4.7.7 I/S Model the Pythagorean Theorem and solve for the hypotenuse.	4.8.7 I/S Verify and explain the Pythagorean Theorem using a variety of methods. Determine the measure of the missing side of a right triangle.	4.12.7 I/S Apply the Pythagorean Theorem and its converse in mathematical and practical situations.	TRIANGLES
	4.6.8 W/L Construct circles, angles, and triangles based on given measurements using a variety of methods and tools including compass, straight edge, paper folding, and technology.	4.7.8 W/L Construct and identify congruent angles, parallel lines, and perpendicular lines.	4.8.8 W/L Construct geometric figures using a variety of tools.	4.12.8 W/L Solve problems by drawing and/or constructing geometric figures to demonstrate geometric relationships.	CONSTRUCTIONS

Nevada Mathematics Standards

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
TOGIC	4.K.9 Sort and classify objects by color and shape. Put events in a logical sequence.	4.1.9 Sort and classify objects by size or thickness. Identify what comes next in a step-by-step story or event sequence.	4.2.9 I Sort and classify objects by two or more attributes.	4.3.9 I/L Use the quantifiers all, some, and none to describe the characteristics of a set.	4.4.9 I/L Use the connectors and, or, and not to describe the members of a set.

Nevada Mathematics Standards

Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
4.5.9 I/S Represent relationships using Venn diagrams.	4.6.9 I/L Identify counterexamples to disprove a conditional statement.	4.7.9 I/L Make and test conjectures to explain observed mathematical relationships and to develop logical arguments to justify conclusions.	4.8.9 I/L Represent logical relationships using conditional statements.	4.12.9 I/S Formulate, evaluate, and justify arguments using inductive and deductive reasoning in mathematical and practical situations.	LOGIC

Nevada Mathematics Standards

Content Standard 5.0 Students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

1110	K	1	2	3	4
DATA COLLECTION AND ORGANIZATION	5.K.1 Collect, organize, and record data using objects and pictures. Represent data in a variety of ways in response to questions posed by teachers.	5.1.1 Collect, organize, and record data in response to questions posed by teacher and/or students. Use tally marks to represent data.	5.2.1 I Collect, record, and classify data in response to questions posed by teacher and/or students. Use tables, pictographs, and bar graphs to represent data.	5.3.1 I/S Pose questions that can be used to guide data collection, organization, and representation. Use graphical representations, including number lines, frequency tables, and pictographs to represent data.	5.4.1 I/S Pose questions that can be used to guide the collection of categorical and numerical data. Organize and represent data using a variety of graphical representations including frequency tables and line plots.
CENTRAL TENDENCY AND DATA DISTRIBUTION					5.4.2 I/L Model and compute range. Model the measures of central tendency for mode and median.

Nevada Mathematics Standards

Content Standard 5.0 Students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
5.5.1 I/S Pose questions that can be used to guide the collection of categorical and numerical data. Organize and represent data using a variety of graphical representations including stem and leaf plots and histograms.	5.6.1 I/S Pose questions that guide the collection of data. Organize and represent data using a variety of graphical representations including circle graphs and scatter plots.	5.7.1 E/S Formulate questions that guide the collection of data. Organize, display, and read data using the appropriate graphical representations (with and without technology).	5.8.1 E/S Formulate questions and design a study that guides the collection of data. Organize, display, and read data including box and whisker plots (with and without technology).	5.12.1 E/S Organize statistical data through the use of tables, graphs, and matrices (with and without technology).	DATA COLLECTION AND ORGANIZATION
5.5.2 I/S Compute range. Model and compute the measures of central tendency for mean, median, and mode.	5.6.2 I/S Select and apply the measures of central tendency to describe data.	5.7.2 I/S Interpret graphical representations of data to describe patterns, trends, and data distribution.	5.8.2 I/S Select and apply appropriate measures of data distribution, using interquartile range and central tendency.	5.12.2 I/S Select and apply appropriate statistical measures in mathematical and practical situations.	CENTRAL TENDENCY AND DATA DISTRIBUTION

Nevada Mathematics Standards

Content Standard 5.0 Students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
INTERPRETATION OF DATA					5.4.3 I/S Interpret data and make predictions using frequency tables and line plots.
PERMUTATIONS AND COMBINATIONS					

Nevada Mathematics Standards

Content Standard 5.0 Students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
5.5.3 I/S Interpret data and make predictions using stem-and-leaf plots and histograms.	5.6.3 I/S Analyze the effect a change of graph type has on the interpretation of a set of data. Interpret data and make predictions using circle graphs and scatter plots.	5.7.3 I/L Analyze the effect a change of scale will have on statistical charts and graphs.	5.8.3 E/S Evaluate statistical arguments that are based on data analysis for accuracy and validity.	5.12.3 E/S Distinguish between a sample and a census. Identify sources of bias and their effect on data representations and statistical conclusions. Use the shape of a normal distribution to compare and analyze data from a sample.	INTERPRETATION OF DATA
5.5.4 I/S Represent and solve problems involving combinations using a variety of methods.	5.6.4 E/S Find the number of outcomes for a specific event by constructing sample spaces and tree diagrams.	5.7.4 I/S Find the number of permutations possible for an event in mathematical and practical situations.	5.8.4 I/S Find the number of combinations possible in mathematical and practical situations. Distinguish between permutations and combinations.	5.12.4 I/S Apply permutations and combinations to mathematical and practical situations, including the Fundamental Counting Principle.	PERMUTATIONS AND COMBINATIONS

Nevada Mathematics Standards

Content Standard 5.0 Students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

	K	1	2	3	4
EXPERIMENTAL AND THEORETICAL PROBABILITY			5.2.5 I Use informal concepts of probability (certain and impossible) to make predictions about future events.	5.3.5 I/S Use informal concepts of probability (certain, likely, unlikely, impossible) to make predictions about future events.	5.4.5 I/L Conduct simple probability experiments using concrete materials. Represent the results of simple probability experiments as fractions to make predictions about future events.
STATISTICAL INFERENCES					

Nevada Mathematics Standards

Content Standard 5.0 Students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.

At a minimum, students will maintain previous skills and attain the following:

5	6	7	8	9-12	
5.5.5 I/L Conduct simple probability experiments using concrete materials. Represent the results of simple probability experiments as decimals to make predictions about future events.	5.6.5 I/S Find experimental probability using concrete materials. Represent the results of simple probability experiments as fractions, decimals, percents, and ratios to make predictions about future events.	5.7.5 I/S Find the theoretical probability of an event using different counting methods including sample spaces and compare that probability with experimental results. Represent the probability of an event as a number between 0 and 1.	5.8.5 I/S Differentiate between the probability of an event and the odds of an event.	5.12.5 I/S Determine the probability of an event with and without replacement using sample spaces. Design, conduct, analyze, and effectively communicate the results of multi-stage probability experiments.	EXPERIMENTAL AND THEORETICAL PROBABILITY
5.5.6 I/L Select an appropriate type of graph to accurately represent the data and justify the selection.	5.6.6 I/S Analyze various representations of a set of data to draw conclusions and make predictions. Describe the limitations of various graphical representations.	5.7.6 I/S Interpolate and extrapolate from data to make predictions for a given set of data.	5.8.6 I/S Formulate reasonable inferences and predictions through interpolation and extrapolation of data to solve practical problems.	5.12.6 I/L Design, construct, analyze, and select an appropriate type of graphical representations to communicate the results of a statistical experiment. Formulate and justify inferences based on a valid data sample.	STATISTICAL INFERENCES

Mathematics Glossary

Absolute Value: The distance of a number from zero on a number line. (|5| = 5 or |-7| = 7)

Accuracy: In numerical computations, accuracy may mean the number of significant digits. In measurement, accuracy refers to the precision of measurement.

Acute Angle: An angle that measures between 0 and 90 degrees.

Acute Triangle: A triangle in which all three angles are less than 90 degrees.

Addend: One of the numbers that are being added together in a sum.

Additive Inverse: The opposite of a number. (The additive inverse of x is -x; x + (-x) = 0)

Algebraic Expression: An expression that consists of numbers, variables, and mathematical symbols.

Algorithm: A step-by-step method used to solve a problem.

Analog Clock: A traditional clock with a face and hands used to indicate time.

Angle: The figure formed when two rays meet at a common endpoint called the vertex.

Angle of Inclination: An angle formed by a horizontal line and a line of sight above it measuring less than 90 degrees.

Area: The number of square units enclosed within a figure.

Arithmetic (Numerical) Sequence: A numerical sequence in which the difference between successive terms is constant. (Given the sequence 3, 6, 9, 12, ... the difference between consecutive terms is 3.)

Array: A rectangular arrangement of objects in rows and columns. (matrix)

Associative: Properties which state the manner of grouping three or more numbers when added or multiplied does not change the answer.

$$(2 + (3+5) = (2+3) + 5)$$

 $(2 \times (3\times5) = (2\times3) \times 5)$

Attribute: A characteristic of an object such as color, shape, or size.

Bar Graph: A graph that uses horizontal or vertical bars to represent data.

Bias: A statistical sample that does not accurately represent the entire population.

Binomials: A polynomial that contains two unlike terms. (2x + 3y)

Bisector: A straight line or a plane that divides a line, a plane, an angle, or a shape into two equal parts.

Box and Whisker Plot: A graph that shows the distribution of data along a number line. Quartiles divide the data into four equal parts.

Calculate (Compute): Finding the solution to a problem using addition, subtraction, multiplication, division, exponents, or square roots.

Capacity: The maximum amount a container can hold.

Cardinal Number: A whole number used to indicate quantity.

Categorical Data: Non-numerical categories used to describe data. (favorite color, food, or pet)

Census: The collection of data from the entire population, rather than from a sample.

Central Angle: An angle whose vertex is at the center of a circle.

Circle: The set of all points in a plane that are equidistant from a given point called the center.

Circle Graph (Pie Chart): A graph that uses a divided circle to show pictorially how a total amount is divided into parts.

Circumference: The distance around a circle.

Classify: To sort into different classes, groups, or sets.

Combinations: The number of possible arrangements of items or events in which order does not matter.

Common Denominator: A number that is a multiple of each of the denominators in a set of given fractions.

Commutative: Properties which state that the order in which two numbers are added or multiplied does not change the answer. (2 + 3 = 3 + 2) $(2 \times 3 = 3 \times 2)$

Complementary: Two angles whose measures add to exactly 90 degrees.

Composite Number: A number that has more than two factors, not including 1.

Computation: Carrying out a mathematical process to determine a result.

Conclusion: A decision, judgment, or prediction based on logical reasoning.

Conditional Statement: A logical statement consisting of a hypothesis and a conclusion.
(If-then statement)

Congruent: Angles, figures, and segments having the same size and shape.

Conjecture: A statement that seems to be true but has not yet been proven.

Construct: To create a figure or diagram that will satisfy a given set of conditions usually with a compass or straightedge.

Converse: The conditional statement formed by interchanging the "if" and "then" parts of the original conditional statement. (The converse of "if *x*, then *y*" is "if *y*, then *x*".)

Converse of the Pythagorean Theorem: If the square of the hypotenuse is equal to the sum of the squares of the other two legs of a triangle, then the triangle is a right triangle.

Convert: To change from one unit of measure to another.
(1 yard = 36 inches)

Coordinate Plane: A plane formed by the intersection of a horizontal number line called the *x*-axis and a vertical number line called the *y*-axis.

Coordinates: A pair of numbers used to describe the location of a point on a coordinate plane.

Counterexample: An example that proves a statement false.

Cube: A three-dimensional figure that has six square faces.

Customary Systems: A measuring system used mainly in the United States using units such as inches and feet.

Data: Information, facts, or numbers used to describe something.

Data Analysis: A process of collecting and organizing data in order to identify trends and patterns.

Decimal Number: A way of representing a fraction having a denominator that is a power of ten. (7/100 = 0.07)

Deductive Reasoning: Using facts, definitions, accepted properties, and the laws of logic to make a logical argument.

Degree: A unit used to measure temperature or the size of an angle.

Degree of a Polynomial: The highest power of the variable in a polynomial.

Degree of Accuracy: The precision of a measurement or value that can be indicated by the number of significant digits or decimal places.

Denominator: The bottom number of a fraction that tells how many equal parts are in the whole. (In ¾, the 4 is the denominator)

Diagonal: A line segment that connects two non-adjacent vertices of a polygon.

Diagram: A drawing or graphical representation used to illustrate mathematical relationships.

Difference: The answer or result of subtraction.

Digit: Any one of the ten symbols 0 - 9. (Twenty-three (23) contains the digits 2 and 3.)

Dilation: A transformation that enlarges or reduces a figure.

Dimension (Geometry): The length, width, or height of a figure.

Dimension (Matrix): The number of rows and columns in a matrix. (A matrix with 3 rows and 4 columns is called a 3 × 4 matrix.)

Discrete Methods: Solving problems using structures such as graphical representations, matrices, sets, and algorithms.

Distance: The length of the shortest line segment between two points.

Distributive: The property which states that multiplying a sum by a number gives the same result as multiplying each addend by the number and then adding the products together.

 $(a(b + c) = a \bullet b + a \bullet c)$

Divisible: A number n is divisible by a number m if there is no remainder when n is divided by m.

Domain: The set of all possible input values for a function or relation.

Draw: To create a figure in a set form without the use of a construction tool.

Edge: The line segment formed when two faces of a three-dimensional figure intersect.

Elapsed Time: The time interval from the start to the end of an activity.

Empirical Statement: A statement that is based upon observation and experimental evidence.

Equal: Having the same value, size or amount.

Equation: A mathematical sentence that shows two expressions as equal.

Equilateral Triangle: A triangle with three congruent sides.

Equivalent: Quantities having the same value.

Error: The difference between the true value and the measured value based on its quantity, often expressed as either absolute error or relative error.

Estimate: An approximate and reasonable answer that is close to the exact answer without actually calculating the exact answer.

Evaluate: To find the value of a numerical or algebraic expression.

Even number: A whole number that is divisible by 2; the units digit is 0, 2, 4, 6, or 8.

Event: A set of possible outcomes for a trial, experiment, or situation.

Experimental Probability: The frequency in which a particular event occurs when compared to the total number of trials in an experiment.

Exponent: The power to which a number or variable is raised. (In the expression 3⁴, four (4) is the exponent.)

Expression: A combination of numbers, symbols, and operations used to represent a quantity.

Extend: To continue a pattern or sequence using the same rule.

Exterior Angle: An angle formed outside of a polygon by extending one of its sides.

Extrapolation: The process of estimating the value of a function or quantity that lies outside a known interval using the values within the known range.

Face: The shape formed by one side of a three-dimensional figure.

Factor: A number that is multiplied by another number to get a product.

Formula: An equation that expresses a mathematical relationship, principle, or rule using a set of symbols. (A = I × w)

Fraction: A number that represents part of a whole or part of a group.

Frequency Table: A table that organizes data to show how often an item occurs.

Function: An input-output relationship that has exactly one output for each input.

Fundamental Counting Principle: The principle that states all possible outcomes in a given situation can be found by multiplying the number of ways each independent event can happen.

Geometric Sequence: A numerical sequence in which the ratio between successive terms is constant. (Given the sequence 3, 6, 12, 24, ..., the ratio of consecutive terms is 2.)

Greatest Possible Error: Half the unit used for measuring.

Grid: A set of uniformly spaced horizontal and vertical lines. A grid is used to help draw a graph or locate a point.

Histogram: A bar graph of numerical data grouped in equal intervals that shows the frequency of data within each interval.

Horizontal: Parallel to the plane of the horizon.

Hypotenuse: In a right triangle, the side that is opposite the right angle.

Identity Property of Addition: The property that states the sum of zero and any number is that given number. (a + 0 = a)

Identity Property of Multiplication: The property that states the product of 1 and any number is that given number. (a × 1 = a)

Immediate Recall: To know without hesitation; usually associated with basic facts.

Improper Fraction: A fraction in which the numerator is greater than the denominator.

Increasing Pattern: A pattern in which the terms of a sequence differ by a systematically growing amount. (1, 2, 4, 7, 11... or 1, 2, 4, 8, 16...) Indirect Measure: The technique of using similar figures, proportions, or other strategies to find a measure. (Finding the height of a tree without actually measuring it)

Inductive Reasoning: A process that includes looking for patterns and making conjectures.

Inequality: A relationship between two expressions that are not equal, often written with the symbols >, \geq , <, \leq , and \neq that mean greater than, greater than or equal to, less than, less than or equal to, and not equal to, respectively.

Integers: The set of whole numbers and their opposites. (negative and positive)

Integral Exponent: An exponent that is a whole number or its opposite. (x⁴ or y⁻⁴ have integral exponents of 4 and -4, respectively)

Intercept: The point at which a line or curve crosses a given axis.

Interior Angle: An angle inside a polygon, or angles formed in the area between two lines when they are intersected by a transversal.

Interpolation: The process of estimating a value lying between two known values.

Interquartile Range: Difference between the first and third quartiles in a data set.

Intersecting Lines: Lines that have exactly one point in common.

Interval: The set of all the values between two given numbers.

Inverse Operations: Two operations that undo each other. (addition/subtraction)

Inverse Property of Addition: The sum of a number and its additive inverse is always zero, (x + (-x) = 0)

Inverse Property of Multiplication: The product of a number and its multiplicative inverse is always one,

 $(y \bullet 1/y = 1).$

Irrational Number: A number that cannot be expressed as a ratio of two integers. A number which has an infinite but non-repeating decimal representation.

Irregular Polygon: A polygon in which not all sides or interior angles are congruent.

Isosceles Triangle: A triangle with at least two congruent sides and angles.

Justify: Use evidence or data to support a conclusion.

Line of Symmetry: A line that separates a figure into two congruent parts that are reflections of each other.

Line Plot: A graph that displays data as points above a number line or other some other line of characteristics or attributes.

Line Segment: Part of a line defined by two endpoints.

Linear Equation: An algebraic equation that can be represented by a straight line.

Logic: The process by which a conclusion is derived from a set of initial assumptions (premises). It is not concerned with examining or determining the truth of the premises. Given true premises, the conclusion must be true if the process to derive the conclusion is correct.

Manipulatives: Tools, models, blocks, tiles, and other objects used to explore, represent, and extend mathematical ideas, and to solve problems.

Mass: The measure of the amount of matter of an object. (Although one's mass is the same on Earth as on the Moon, one weighs more on Earth due to its stronger gravitational pull.)

Mathematical Situation: A problem or exercise free of context. (3 x 5)

Matrix: A method of displaying information in a rectangular array, enclosed in brackets. $(3x^2 + 4x + 2 \text{ displayed as a matrix is } [3 4 2])$

Mean: The arithmetic average of a collection of numerical data.

Measures of Central Tendency: A measure used to describe the middle or typical value of a data set. (Mean, median, and mode)

Median: The middle value, or the mean of the two middle values, in an ordered set of numerical data.

Mental Computation (Mental Math): Computing an exact answer without using paper and pencil, or other physical aids.

Metric System: A measurement system of measurement based on powers of ten.

Midpoint: A point that separates a line segment into two congruent parts.

Mixed Number: A number made up of an integer and a fraction.

Mode: The value/category that occurs most often in a collection of data.

Model: To represent or show mathematical ideas and relationships using objects, pictures, graphs, equations, or other methods.

Multiple: The product of any number and a whole number is a multiple of the given number. (24 is a multiple of 6 because $4 \times 6 = 24$)

Multiplicative Inverse: The reciprocal of a non-zero number. (The multiplicative inverse of a number y is 1/y.)

Natural Numbers: The set of counting numbers {1, 2, 3...}.

Negative Number: Any real number that is less than zero.

Non-Standard Measurement: A method of measuring that uses informal units. (handful, arm length, and stride)

Normal Distribution: A specific, smooth, symmetrical, bell-shaped distribution of data.

Number Line: A line on which each point represents a real number.

Number Sentence: A sentence that represents equality or inequality between two mathematical expressions.

Number Theory: The exploration of number properties and characteristics of numbers.

Numeral: A symbol representing a number.

Numerator: The top number in a fraction that tells how many parts of a whole are being considered.

Oblique Lines: Lines that are neither parallel nor perpendicular.

Obtuse Angle: An angle with a measure between 90 and 180 degrees.

Obtuse Triangle: A triangle with one obtuse angle.

Odd Number: A whole number that is not divisible by two; the units digit is 1, 3, 5, 7, or 9.

Odds: Comparison of the number of favorable outcomes and the number of unfavorable outcomes in a probability experiment.

One-to-One Correspondence: The number of elements in one set equals the number of elements in another set.

Open Sentence: A mathematical sentence with at least one missing value. (1 + ___ = 12)

Operation: A term or symbol used to refer to addition, subtraction, multiplication, division, powers, and roots.

Order of Operations: A rule for uniform evaluation of expressions with multiple operations.

(Appropriate order is grouping symbols, powers and roots, multiplication/division from left to right, and addition/subtraction from left to right)

Ordered Pair: A pair of numbers that gives the location of a point on a coordinate plane. The first number describes the horizontal reference and the second number describes the vertical reference.

Ordinal Number: Any number used for ranking order. (1st, second, 3rd, fourth)

Outcome: A possible result of a trial, experiment, or situation.

Parallel Lines: Lines in the same plane that never intersect.

Pattern: A design or list that consists of numbers or items following a specific rule.

Percent: A ratio that compares a number to 100.

Perfect Square: The product resulting from multiplying any whole number by itself.

Perimeter: The distance around a figure.

Permutation: An arrangement of items or events in which order is important.

Perpendicular Lines: Two lines that intersect to form right angles.

Pictograph: A graph that represents numerical information using picture symbols.

Place Value: The value given to a digit based on the place it occupies in the number.

(In the numeral 643, 6 is in the hundreds place and represents a value of 600.)

Plane Figure: A two-dimensional figure.

Plane: A flat surface that extends forever in length and width but has no thickness.

Point: A geometric object that has no dimension and is used to indicate a location.

Polygon: A simple, closed plane figure with sides consisting of line segments.

Polynomials: Algebraic expressions that can be represented by two or more unlike terms. (5x + 2y + 3)

Positive Number: Any real number greater than zero.

Power: A number produced by raising a base to a given exponent.

Powers of Ten: The expression 10^n , where n is an integer. $(10^{-3} = 0.001, 10^0 = 1, 10^2 = 100)$

Practical Situation: A problem or exercise in a context. (Three children each have five marbles. How many total marbles are there?)

Precision of Measurement: The level of detail of a measurement determined by the measurement device or unit.

Prime Number: A whole number that has exactly two factors, itself and 1. (1 is not a prime number)

Prism: A three-dimensional figure that has two congruent and parallel faces that are polygons. The remaining faces are parallelograms.

Probability: The number of favorable outcomes compared to the number of possible outcomes of an experiment.

Product: The answer or result of multiplication.

Proportions: An equation that represents the equality of two ratios.

Pyramid: A three dimensional figure with a polygonal base, commonly a triangle or square, and triangular sides that meet in a point.

Pythagorean Theorem: If a triangle is a right triangle, then the square of the hypotenuse is equal to the sum of the squares of the other two legs of a triangle.

Quadrant: The labels for the four sections of a coordinate grid separated by the *x*-and *y*-axes. The first quadrant is the region which includes only positive ordered pairs.

Quadratic Equation: A polynomial equation in which the highest power of the variable is two. The general form of such equations in the variable x is $ax^2 + bx + c = 0$ where a, b, and c are constants and a is not zero.

Quadrilateral: Any four-sided plane figure.

Quotient: The answer or result of division.

Radicals: A term used to refer to roots of numbers such as the cube root of 125.

Range (Function): The set of values that make up the possible values of the dependent variable.

Range (Statistics): The difference between the greatest and the least values in a set of data.

Rate: A ratio comparing two different units. (miles per hour or dollars per franc)

Ratio: A comparison of two quantities or measures using division. (rise/run)

Rational Number: A number that can be written in the form of a fraction, a/b, where a and b are integers and b is not equal to zero.

Ray: A part of a line that has one endpoint and extends indefinitely in one direction.

Real Numbers: The set consisting of the rational and irrational numbers.

Reflection: The mirror image of a figure. A reflection is often referred to as a flip.

Regrouping: Occurs in a mathematical operation when numbers are renamed. (2 tens and 14 ones can be regrouped as 3 tens and 4 ones)

Regular Polygon: A polygon with congruent sides and angles.

Relation: A set of ordered pairs.

Replacement Set: A collection of potential values to be used in place of the variable in an open mathematical sentence.

Representation: A reproduction of the attributes of an object, number, or concept.

Right Angle: An angle that measures exactly 90 degrees.

Right Triangle: A triangle with one interior angle is a right angle, an angle that measures exactly 90 degrees.

Right Triangle Trigonometry: The branch of mathematics that studies the relationships between the sides and angles in a right triangle.

Root: A number that can be used as a factor a given number of times to produce the original number. (The fifth root of 32 is 2 because 2 x 2 x 2 x 2 x 2 = 32.)

Rotation: A transformation obtained by rotating a figure around a given point. A rotation is often referred to as a turn.

Rounding Numbers: Replacing a number with an estimate of that number to a given place value.

Sample: A number of people, objects, or events chosen from a given population to represent the entire group.

Sample Space: The list of all possible outcomes for a trial, experiment, or situation.

Scalar: A number as distinguished from a vector or matrix.

Scale: 1. The ratio between the size of the drawing or model and the size of the actual object.

2. A system of marks at fixed intervals used in measurement or graphical representation.

Scale Drawing: A reduced or enlarged drawing whose shape is the same as the object it represents.

Scalene Triangle: A triangle having no congruent sides.

Scatter Plot: Data that is plotted as points on a graph to show a possible relationship between two sets of data.

Scientific Notation: A method of writing very large or very small numbers by using powers of 10. (In scientific notation, 3456 is 3.456 x 10³.)

Sequence: An ordered set of objects or numbers.

Set: Any group of items or numbers that are selected according to a well-defined rule.

Significant Digit: In measurement, the significant digits tell how much of a measured value can be used with confidence. The most significant digit is the first non-zero digit in the number.

Similarity: Figures that have the same shape, but not necessarily the same size. Corresponding sides of similar figures are proportional.

Simple Interest: A fixed percent of the principal. It is found using the formula I = Prt, where P represents the principal, r the rate of interest, and t the time.

Sketch: A hasty drawing lacking detail.

Skip Count: To count by multiples of a number. (count by two's, five's, or ten's)

Slope: A measure of the steepness of a line on a graph; as measured by the pitch or the rise divided by the run.

Solution: Any value or values that make an equation or inequality true.

Solve: To find all the solutions of an equation or other mathematical problem.

Sphere: A three-dimensional figure in which all points on its surface are equidistant from a fixed point called the center.

Square Root: A number that, when multiplied by itself, produces a given number.

Standard Units: Units of measure that have an accepted value like inch, cup, meter, and pound.

Stem and Leaf Plot: A method of comparing data where the "stem" includes the numbers in the larger place values and the "leaf" includes the numbers in the smallest place value.

Straight Angle: An angle with a measure of 180 degrees. It represents one-half of a circle or one-half of a complete rotation.

Straight Edge: A tool with no markings used to construct a straight line.

Strategy: A method or way of solving a problem.

Substitution: Replacing a variable or an expression with a number or other expression in an algebraic expression.

Sum: The answer or result of the addition of two or more numbers together.

Supplementary Angles: Two angles whose measures add to exactly 180 degrees.

Surface Area: The sum of the areas of all faces of a solid three-dimensional figure.

Symbol: A letter, figure, or sign used to represent a quantity, relation, function, object or operation.

Symbolic Language: Mathematical ideas expressed as a symbol or group of symbols.

Symmetry (Line): When an object can be folded in half to form two mirror images.

Symmetry (Rotational or Point): When an object can be rotated less than 360 degrees about a point to coincide with an image of the object.

Table: A chart that organizes data in rows and columns to show facts and figures.

Tabular: Data organized as a table.

Tally Mark: Line segments arranged to represent numbers in groups of five.

Theoretical Probability: The number of possible ways an event can happen compared to all possible outcomes.

Three-Dimensional: A figure having length, width, and height.

Tolerance: The allowable error in a given measurement. (5.125 +/- 0.005 is a standard way of writing tolerance)

Transformational Motion: Movement of an item through translation, reflection, and rotation.

Translation: Changing the position of an object by sliding it in any direction without rotation or reflection. Translations are often referred to as slides.

Transversal: A line that intersects two or more lines in a given plane. Often used with parallel lines, but not exclusively.

Tree Diagram: A branching diagram that displays all possible combinations or outcomes of an event.

Trend: A general pattern in a set of data.

Triangle Sum Theorem: The sum of the interior angles of any triangle is equal to 180 degrees.

Triangle: A closed plane figure with three straight sides.

Triangular Numbers: Numbers that can be displayed using dots in triangular arrays. (1, 3, 6, 10, ...)

Two-Dimensional: A figure having length and width that can be represented on a coordinate grid.

Unit Fraction: A fraction in which the numerator is 1 and the denominator is a non-zero whole number.

Unit: A defined amount that is used as a standard of measurement.

Unknown: A variable whose value is found by solving an equation.

Validate: Give evidence that a solution or process is correct.

Value: Any fixed number or quantity applied to a variable.

Variable: A symbol, such as a letter, box, or star, used to represent an unknown value in an expression or number sentence.

Venn Diagram: A diagram that represents sets and shows where those sets intersect pictorially. Each set is represented by the region inside a simple closed curve.

Verify: The process of demonstrating or proving that a response is correct.

Vertex: The point where two sides of a two-dimensional figure meet or the point where two or more edges of a threedimensional figure meet.

Vertical: A vertical line is straight up and down. It forms a right angle with the horizon.

Volume: The measurement of the amount of space contained in a three-dimensional figure; measured in cubic units.

Weight: A measure of the heaviness of an object.

Whole Numbers: The set of natural numbers plus the number zero. (0, 1, 2, 3, 4, ...)

x-intercept: The *x*-coordinate of the point where the graph of a line crosses the *x*-axis.

y-intercept: The *y*-coordinate of the point where the graph of a line crosses the *y*-axis.

Acknowledgements

Sincere appreciation is extended to the members of the Nevada Mathematics Standards revision team for their time, expertise, and commitment to ensuring that all students in Nevada achieve the state standards.

Nevada Mathematics Standards Revision Team

Joe Barraza Elementary School Teacher Clark County School District

Ann Boeser Elementary School Teacher Washoe County Private School

David Brancamp State Math Consultant Nevada Department of Education

Ellen Crane Rural Nevada Teacher Mineral County School District

Thelma Davis Mathematics Coordinator Clark County School District

Maria Dufek Elementary School Teacher Clark County School District

Pat Erickson High School Teacher Elko County School District

Kindra Fox Northern Nevada RPDP Washoe County School District Tracy Gruber Elementary School Teacher Douglas County School District

Dr. Michael Hardie Professor of Mathematics Western Nevada Community College

Dr. Teruni Lamberg Assistant Professor of Education University of Nevada, Reno

Carol Long Southern Nevada RPDP Clark County School District

Holly Marich Elementary School Teacher White Pine County School District

Sharon McLean Northeast RPDP Elko County School District

Cathleen McStroul
Math Program Facilitator
Washoe County School District

Jennifer Peterson Mathematics Coordinator Clark County School District Sherrilynn Rakestraw Southern Nevada RPDP Nye County School District

Thomas Reagon High School Math Teacher Elko County School District

Martha Robertson Math Program Coordinator Washoe County School District

Jenny Salls High School Math Teacher Washoe County School District

Mary Shoff Northern Nevada RPDP Washoe County School District

Sue Smith-Ansotegui Rural Nevada Teacher Churchill County School District

Dr. William Speer Associate Dean, College of Education University of Nevada, Las Vegas

Karen Staffen Elementary School Teacher Storey County School District Lynn Trell Mathematics Project Facilitator Clark County School District

Lori Urbani-Brown Parent Representative Carson County School District

Cherry Williamson Rural Nevada Teacher Churchill County School District

Kim Willis Great Basin College Elko County School District

Gale Yanish Elementary Math Specialist Elko County School District

Design and Edit Team

Heather Benish Clark County School District

Jessica Cherry Clark County School District